

National Aeronautics and Space Administration



NASA Advisory Council Presentation

Status of Exploration Systems Development

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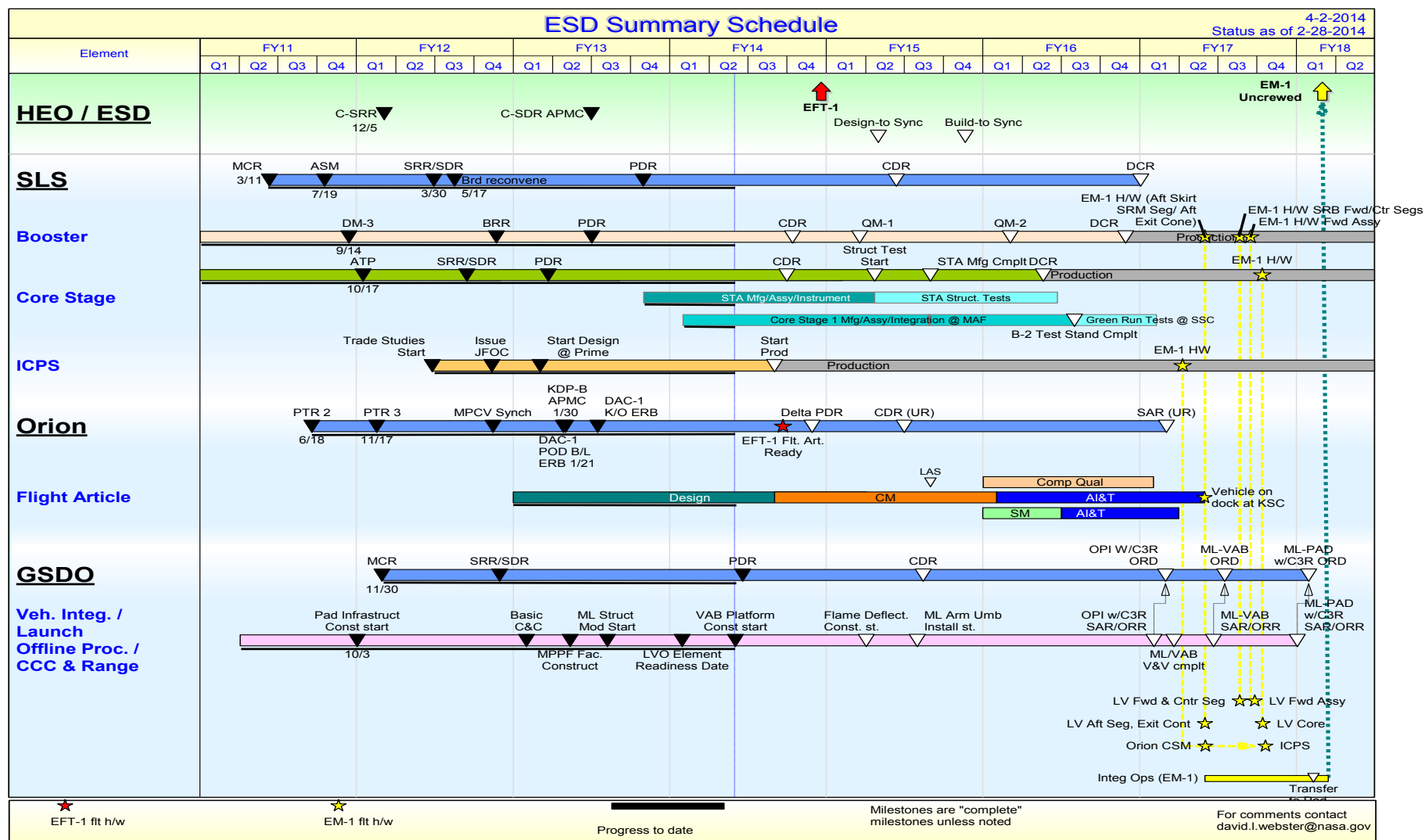
Exploration Systems Development (ESD) Progress



Acing the Test

Watch the video at: <http://youtu.be/pcj37jkpipU>





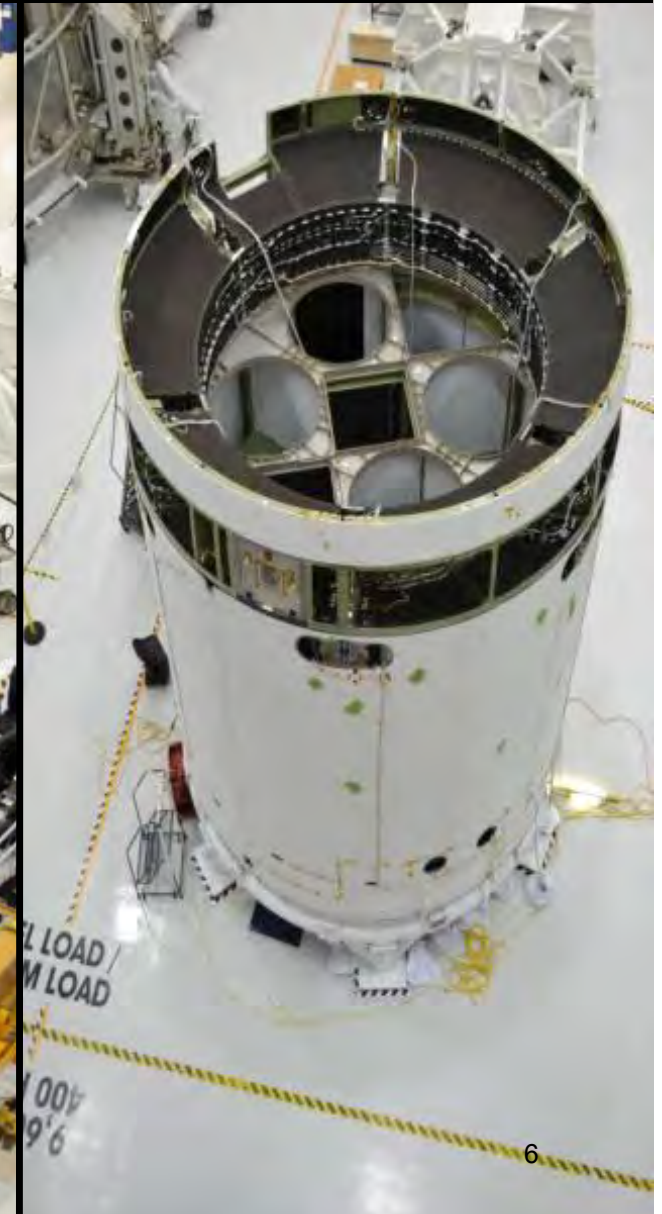
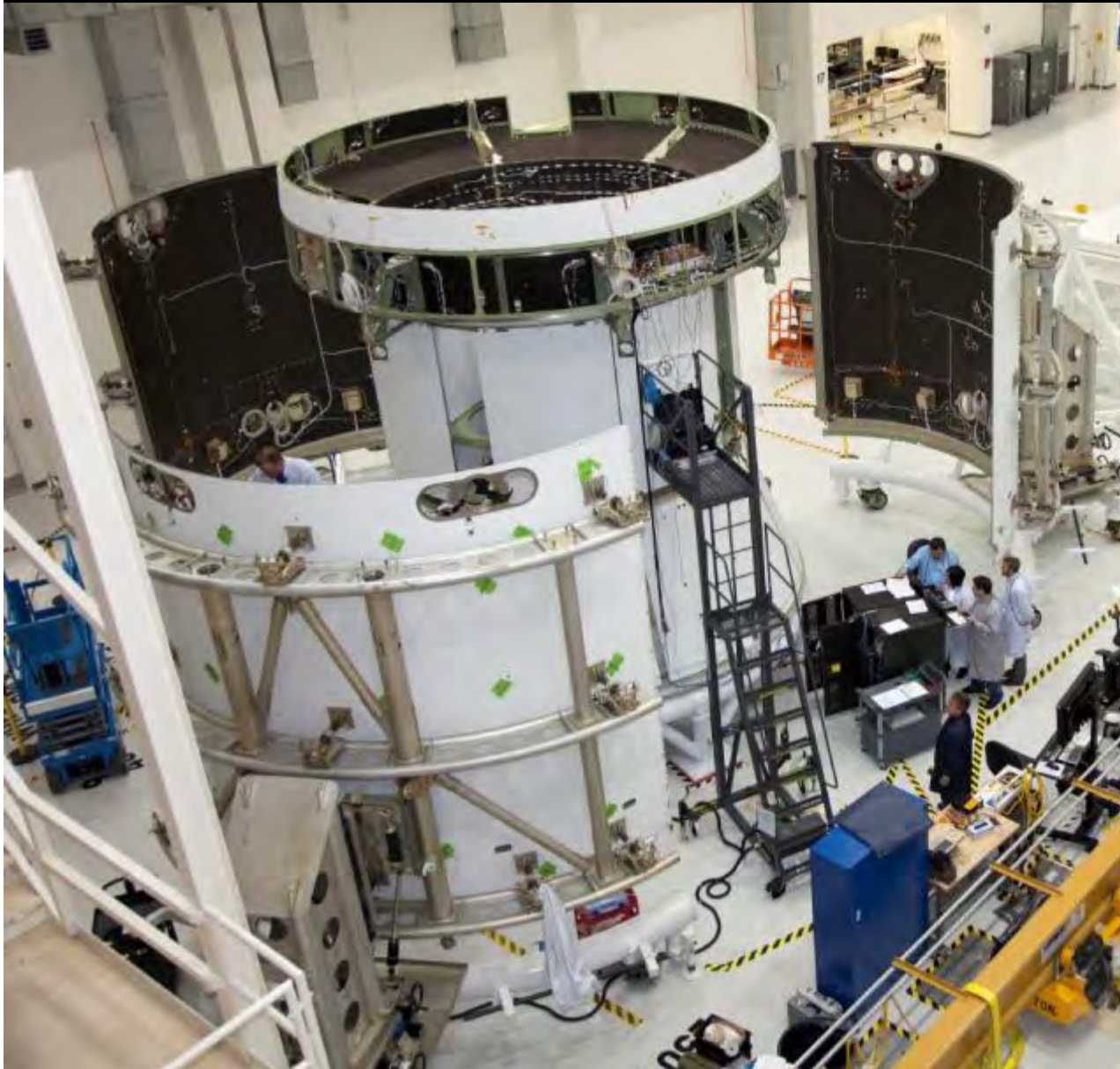
Orion Crew Module

Functional Testing Underway – On Track for May Delivery



Orion Service Module

Assembly Complete – Ready for Integration



Orion Launch Abort System

Assembly Complete – Ready for Integration



SLS Core Stage Major Welding Tools at Michoud Assembly Facility



Building the world's largest rocket in a state-of-the-art facility.

SLS Core Stage Vertical Assembly Center Progress Tower Installation Complete in June 2014



SLS Core Stage/Main Engines Green-Run B-2 Test Stand Progress

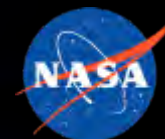


SLS Avionics Progress



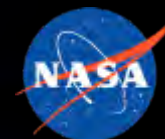
Integrated and powered up hardware, software, and operating systems for an inaugural run.

SLS RS-25 Main Engine Test-Firing



Scheduled for summer 2014 at Stennis Space Center.

SLS Booster Progress



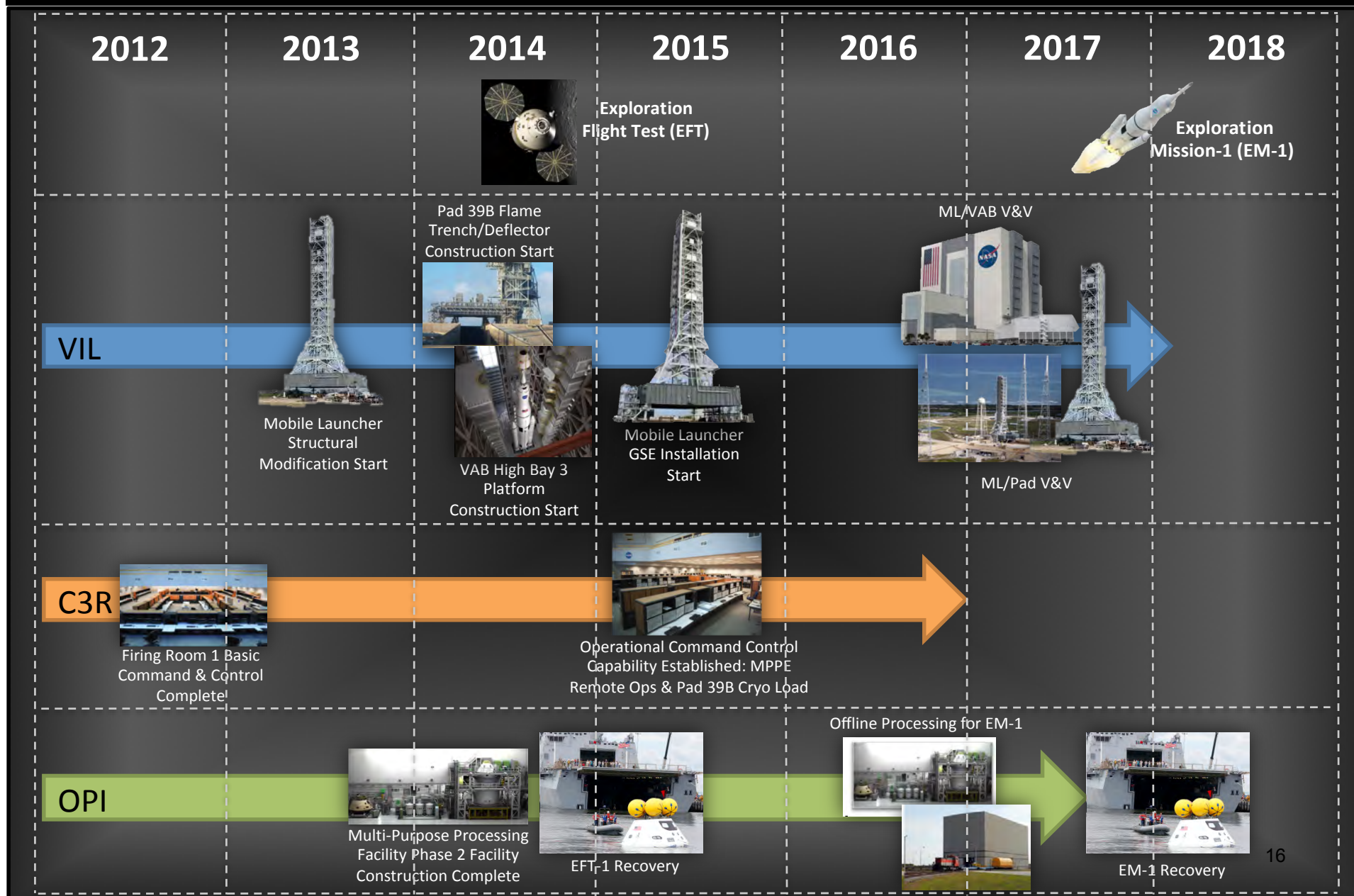
Testing upgrades for the solid rocket boosters.

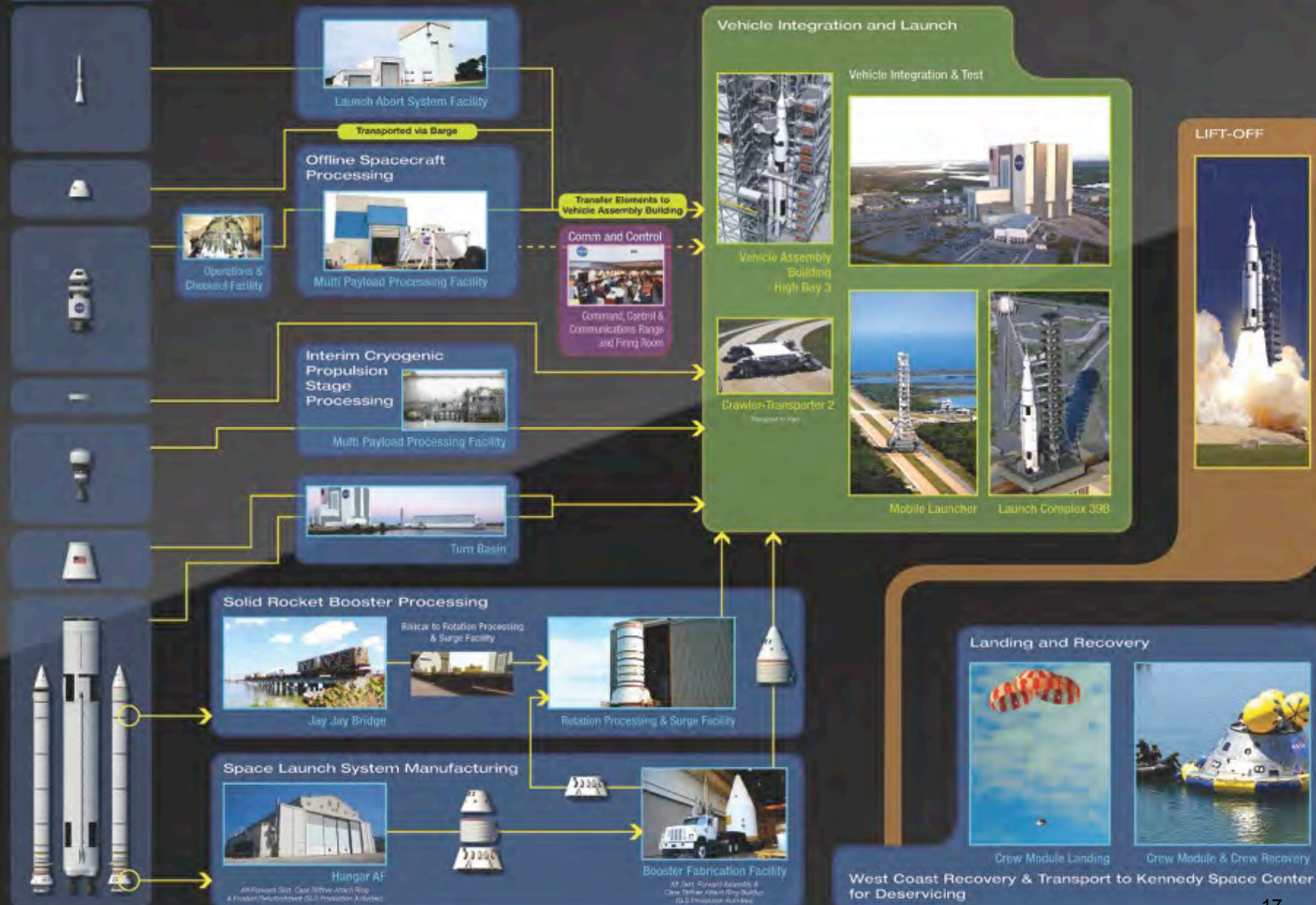


GSDO – Exploration Begins Here!



GSDO – Path to EM-1





GSDO Accomplishments



CT-2 Gear Box Removal



Orion Underway Recovery Test



CT-2 Roller Bearings



Preliminary Design Review



Mobile Launcher Upgrades



Orion Production

GSDO Accomplishments



MRAP



Record and Playback System



Telemetry Updates



Flight Following in FR1

Building to Exploration Flight Test-1



ACCOMPLISHMENTS

05/2012 Final crew module welding completed at Michoud



06/2012 Crew module to KSC



03/2013 Heat shield to Textron for Avcoat application



10/2011 - 7/2013 Nine successful parachute tests



08/2013 Stationary recovery test at Norfolk



09/2013 Avcoat application completed, testing begins



10/2013 Orion power-on at KSC



11/2013 Successful fairing separation



12/2013 Heat shield shipment to KSC



02/2014 EFT-1 Service Module complete



02/2014 Underway Recover Test (URT)



WHAT'S NEXT

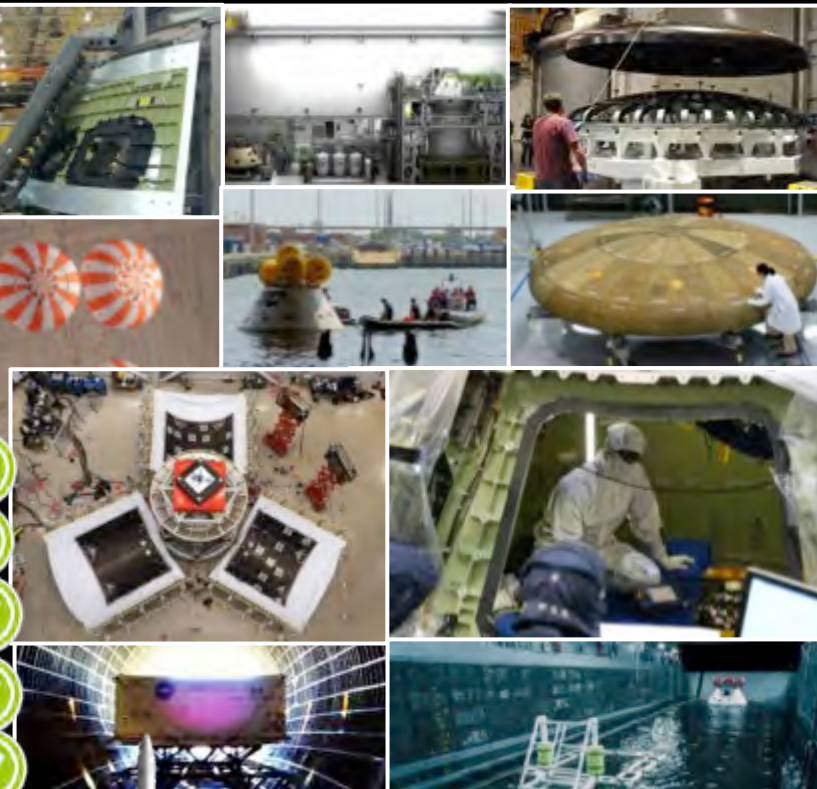
05/2014 Heat Shield installation at KSC

05/2014 EFT-1 Crew Module/Service Module mate, KSC

06/2014 Backshell panel installation to crew module, KSC

07/2014 Flight vehicle ready for ground operations

December 2014 EFT-1 launch, KSC
Orion recovery and return to KSC



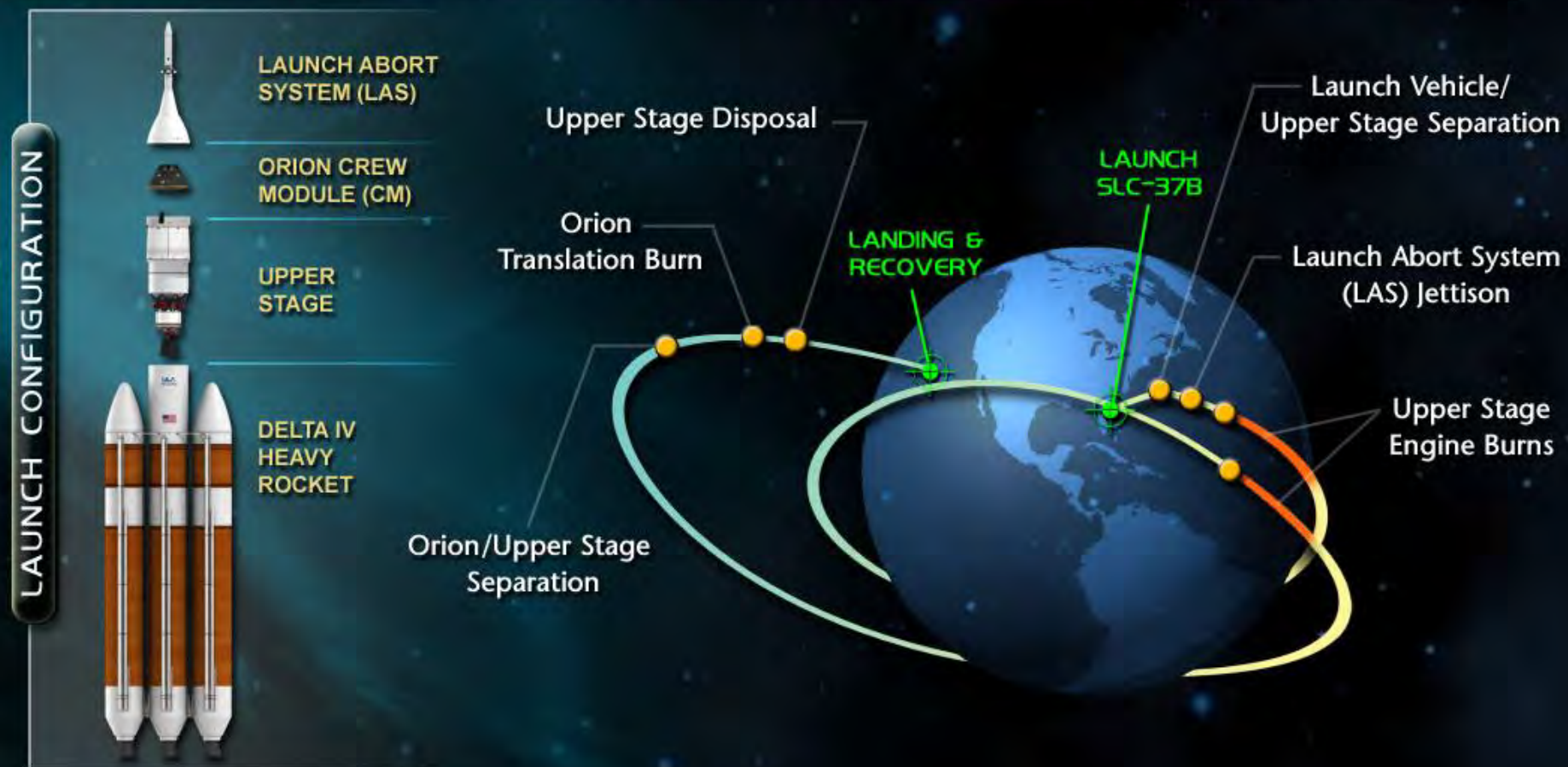
2014



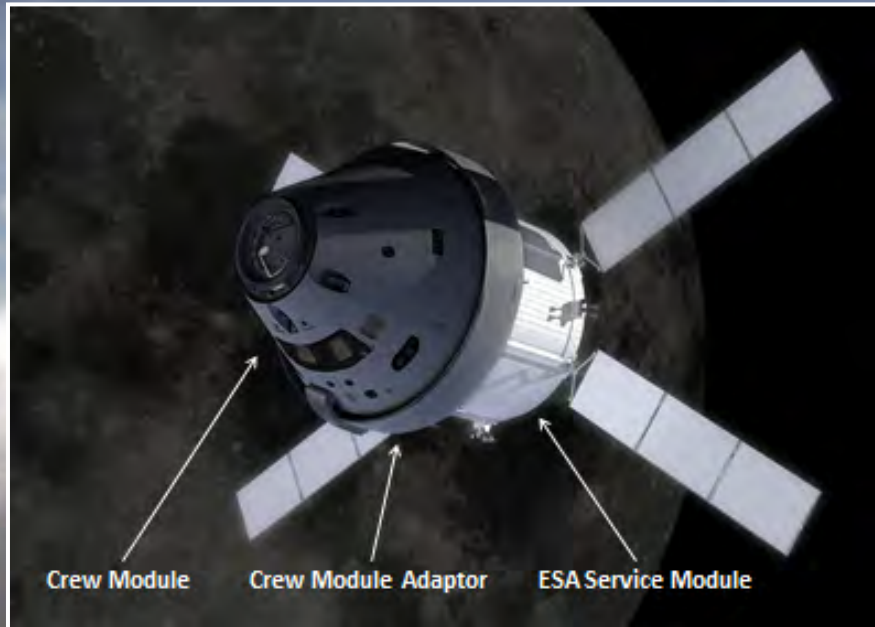
EXPLORATION FLIGHT TEST ONE

OVERVIEW

TWO ORBITS • 20,000 MPH ENTRY • 3,671 MILE APOGEE • 28.6 DEGREE INCLINATION

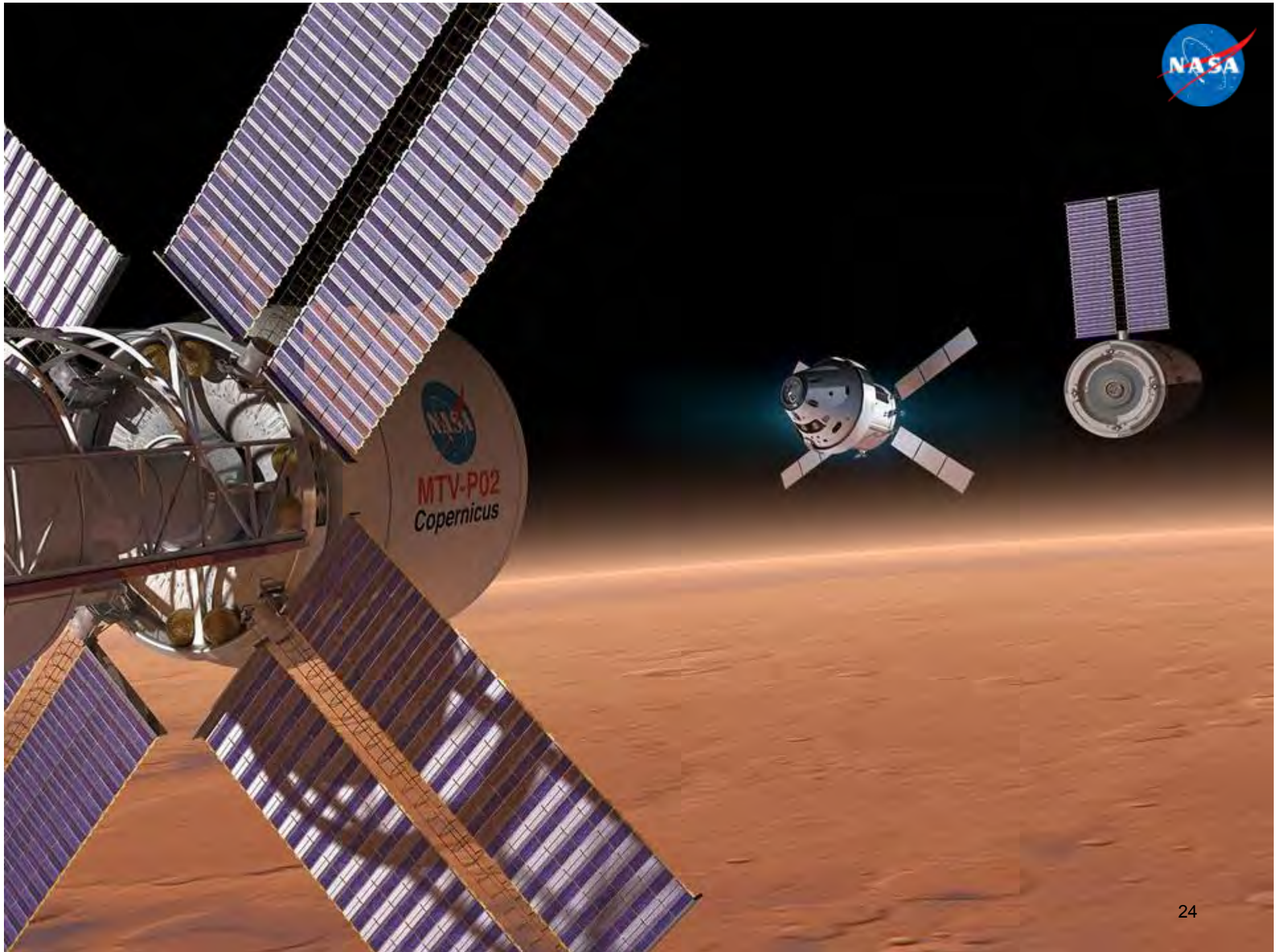


Exploration Missions 1 & 2



Asteroid Redirect Mission





Partners & Suppliers in 48 States



★ 25+ ★ 10-25 ★ <10

Current as of February 2014

Summary



- NASA continues to make great progress with SLS, Orion and GSDO
 - Orion/EFT-1 Crew Module functional testing is complete with Service Module and Launch Abort System assembly complete and ready for integration
 - SLS Core Stage fabrication and assembly facility development in process and test stand construction in work to support core stage/main engines testing
 - GSDO completed PDR in March 2014 and facility/GSE modifications on track to support operations
- SLS, Orion, and GSDO programs remain on track for the first integrated test flight, Exploration Mission-1.

List of Acronyms



CT-2	Crawler Transport #2
EFT-1	Exploration Flight Test #1
EM-1	Exploration Mission #1
ESA	European Space Agency
FR-1	Firing Room #1
GSDO	Ground Systems Development and Operations
ICPS	Interim Cryogenic Propulsion Stage
KSC	Kennedy Space Center
ML	Mobile Launcher
MPPF	Multi Payload Processing Facility
MRAP	Mine Resistant Ambush Protected
SLS	Space Launch System
VAB	Vehicle Assembly Building
V&V	Verification and Validation